

STATE OF KANSAS
PUBLIC WATER SUPPLY
ANNUAL COMPLIANCE REPORT
FOR
CALENDAR YEAR 2001



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BILL GRAVES, GOVERNOR

Kansas Department of Health and Environment
Clyde Graeber, Secretary
Ronald Hammerschmidt, Director, Division of Environment
Karl W. Mueldener, Director, Bureau of Water
Bureau of Water
1000 SW Jackson - Suite 420
Topeka, KS 66612-1367
(785) 296-5514

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I. KDHE's MISSION STATEMENT

KDHE's mission is to optimize the promotion and protection of the health of Kansans through efficient and effective public health programs and services and through preservation, protection, and remediation of natural resources of the environment.

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II. INTRODUCTION

The **Kansas Department of Health and Environment (KDHE)** is charged with protecting and improving the health and environment of Kansans through the wise stewardship of resources. To achieve this, KDHE's Bureau of Water, Public Water Supply Section is responsible for regulating all public water supply systems in the state and assisting them in providing safe potable water to the people of Kansas. There are approximately 1,100 public water supply systems in Kansas, consisting of cities, rural water districts, and privately owned systems. These water systems serve small convenience shops up to a city of more than 300,000 persons.

This report is a summary of Kansas water systems' compliance with drinking water regulations for calendar year 2001. Included in this report are all violations of the maximum contaminant levels (**MCL**), treatment techniques, and monitoring requirements. This report has been prepared by KDHE to inform the general public of the quality of drinking water in Kansas and to comply with the federal **Safe Drinking Water Act (SDWA)**.

The previous report summarizing Kansas drinking water quality for calendar year 2000 is available at www.kdhe.state.ks.us.

III. PUBLIC WATER SUPPLY SYSTEMS

In the State of Kansas, a public water system (water systems) is defined by **Kansas Statute (K.S.A.) 65-162a** and **Kansas Administrative Regulation (K.A.R.) 28-15-11(a)** as a ***“system for delivery to the public of piped water for human consumption that has at least 10 service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.”*** These systems are regulated by KDHE to assure citizens are supplied safe drinking water.

All water systems are required by state regulation (K.A.R. 28-15-18(a)) to be operated and maintained by personnel that are properly trained and certified. Properly trained operators are a critical component in assuring safe drinking water to the public. For this purpose, KDHE administers an operator certification program.

During 2001, there were 1,099 water systems serving water in Kansas. These water systems served approximately 2.5 million Kansas residents in addition to the transient population visiting or traveling through the state. Water systems are classified into two categories; community or non-community water systems. The majority of water systems are community water systems. Community water systems serve a year-round residential population. Non-community water systems serve non-residential populations. Non-community water systems can either be transient or non-transient. Transient non-community water systems serve different people each day. Non-transient non-community water systems serve the same people each day. Table 1, below, summarizes the three types of water systems. Table 1, on the following page, shows the types and numbers of systems in operation during 2001.

TABLE 1.
TYPES OF PUBLIC WATER SUPPLY SYSTEMS

1. **COMMUNITY** - *Same residential consumers every day.*
e.g.: towns, mobile home/trailer parks, rural water districts, subdivisions.
2. **TRANSIENT NON-COMMUNITY** - *Different non-residential consumers every day.*
e.g.: motels, parks, airports, campgrounds, truck-stops.
3. **NON-TRANSIENT NON-COMMUNITY** - *Same non-residential consumers every day.*
eg.: schools, day care facilities, industrial or manufacturing facilities

Water systems obtain water from two sources: **groundwater (GW)** or **surface water (SW)**. Some water systems obtain water from both groundwater and surface water. (Figure 2)

Table 2 and Figure 1 on the following page, show the three types of water systems, the number of systems in each type, the number of systems using groundwater, surface water, or a combination of both, and the total population served by each water system type. Water systems that use both surface and groundwater are governed by surface water regulations.

TABLE 2.
SUMMARY OF PUBLIC WATER SUPPLY SYSTEMS IN KANSAS

TYPE OF WATER SYSTEM	GW	SW	GW/SW	TOTAL(%)	POPULATION
Community Public Water Systems	568	308	50	926 (84%)	2,511,411
Transient Non-Community Water Systems	102	4	3	109 (10%)	2,036
Non-transient Non-Community Water Systems	63	1	0	64 (6%)	25,393
TOTAL	733	313	53	1,099 (100%)	2,538,840

The following three figures show the types, sources and population served by the different sources of water.

FIGURE 1.

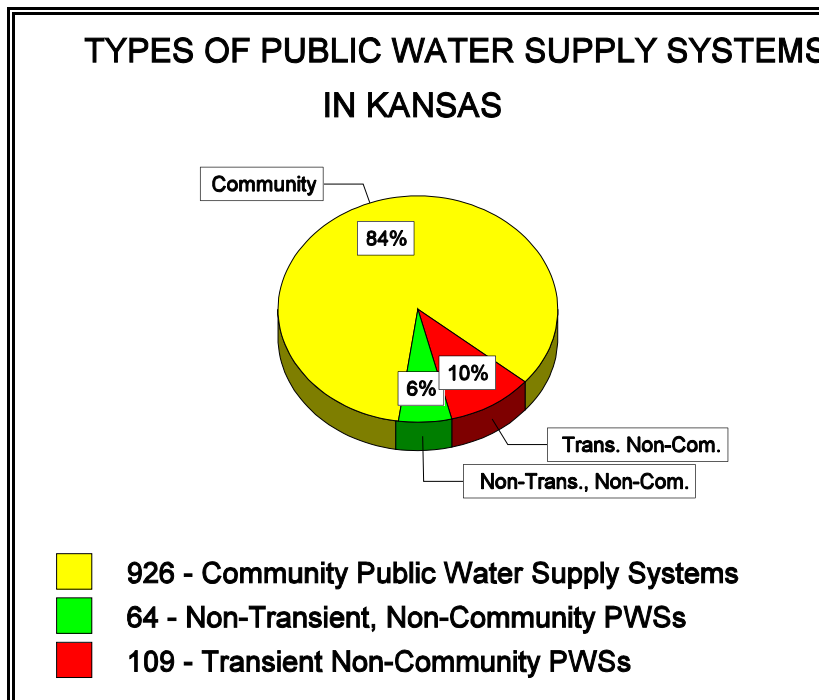


Figure 2. shows the numbers and percentages of systems using groundwater, surface water, or a combination of both.

FIGURE 2.

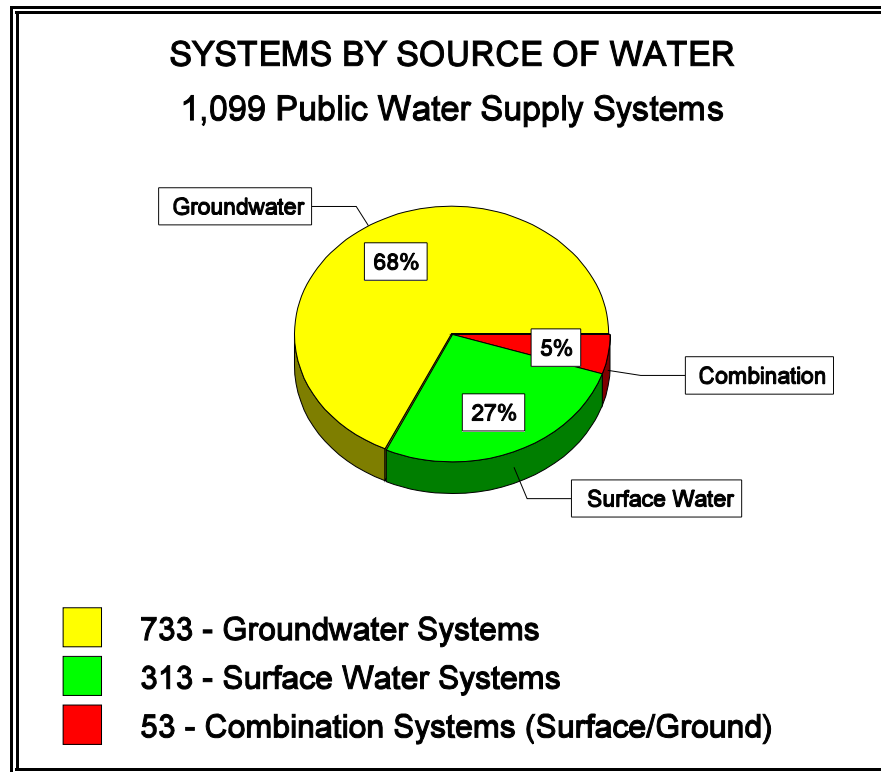
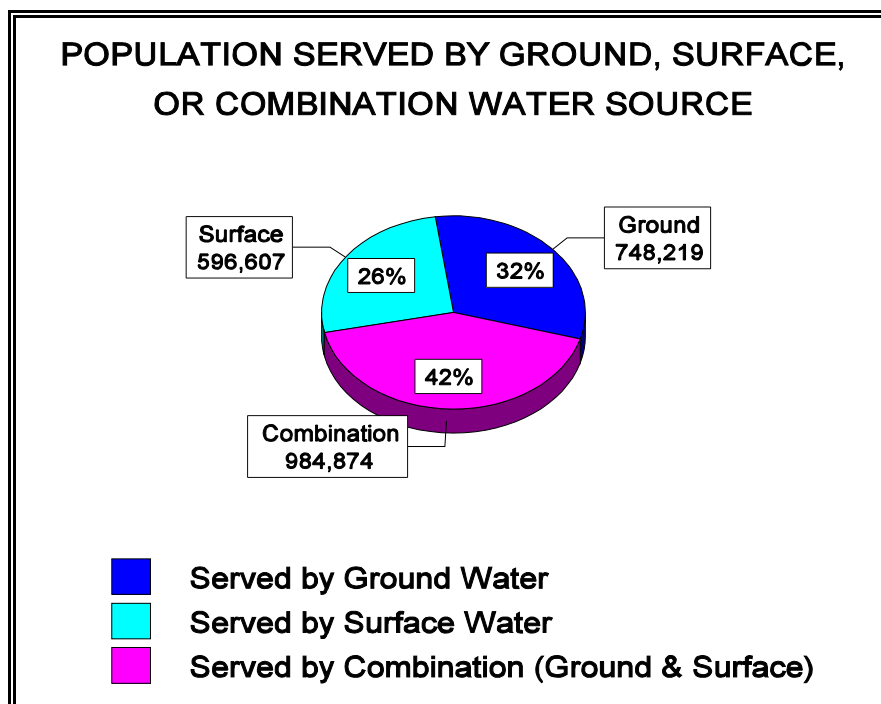


Figure 3. shows the resident population for all water systems served by groundwater, surface water, or a combination of both sources. These numbers include systems purchasing surface or groundwater from other water systems.

FIGURE 3.



IV. REGULATORY PROGRAMS

To help ensure good drinking water quality, several regulatory programs have been developed and implemented by KDHE. These programs monitor water quality in several different areas, ranging from microbiological organisms to inorganic and organic chemicals and radionuclides.

Kansas regulations establish maximum permissible levels for certain drinking water contaminants. These levels are known as **maximum contaminant levels (MCLs)**. In some situations, regulations also require application of minimum water **treatment techniques (TT)**.

To verify compliance with the MCLs and treatment techniques, regulations require water systems to regularly monitor and report to KDHE their water quality parameters. These requirements help to assure that all water systems provide safe drinking water for human consumption.

COMPLIANCE AND ENFORCEMENT

One of KDHE's objectives is to assist water systems in complying with all state and federal

drinking water regulations.

The department attempts to use technical assistance rather than formal enforcement action to return water systems to compliance. When necessary, enforcement action is administered according to an escalation policy. The first step is to notify the water system by mail that a violation occurred. If three violations occur within any twelve month period, a directive is sent to the water system. If violations continue then either a Consent Order or an Administrative Order, with or without a penalty fine, could be issued.

The KDHE staff are available to assist water systems with regulatory concerns, and technical questions, and will refer the systems to third party technical assistance providers as appropriate.

KDHE **has not** issued any variances or exemptions from the SDWA requirements to any water system and has not received any request for variances or exemptions from any water system. All water systems are expected to comply with all drinking water regulations and to perform public notice if violations occur.

Current regulations administered by KDHE address the following areas of drinking water contaminants:

- ▶ **TOTAL COLIFORM BACTERIA**
- ▶ **PHASE II/V CHEMICALS**
- ▶ **LEAD AND COPPER**
- ▶ **DISINFECTION BY-PRODUCTS**
- ▶ **SURFACE WATER TREATMENT**
- ▶ **RADIONUCLIDES**

V. TOTAL COLIFORM BACTERIA

Water serves a very important role in maintaining health since it can be a common medium for transmitting diseases. For this reason, methods of disinfecting water have been developed. The most common method used today for disinfecting water is chlorination. Chlorination of drinking water has been practiced since the early nineteen hundreds.

Total Coliforms are common in the environment and are generally not harmful themselves. Fecal Coliforms and E. coli are generally not harmful but their presence in drinking water is serious because they usually are associated with sewage or animal waste. The presence of these bacteria in drinking water generally is a result of a problem with water treatment or the pipes which distribute the water, and indicates that the water may be contaminated with organisms that can cause disease (pathogens).

In Kansas, water systems are required by state regulation K.A.R. 28-15-19(a) to disinfect all drinking water delivered to the public. To help evaluate the effectiveness of the disinfection method and determine microbiological quality, all systems are required by state regulation K.A.R. 28-15-14 to submit monthly water samples for coliform bacteria testing. Total coliform

testing is used as an indicator of the possible presence of other bacteriological contaminants. Systems can choose to have this bacteriological testing of their water performed by KDHE's microbiology laboratory or a state certified private laboratory.

Water systems are required to collect a minimum of two and up to as many as 180 or more water samples each month based on their population, source and previous sample results.

A summary of the results of approximately 37,000 water samples collected and analyzed for coliform bacteria in the state laboratory during 2001 is presented in Table 3.

TABLE 3.

SUMMARY OF BACTERIOLOGICAL MONITORING RESULTS -2001

QUARTER COLLECTED	NEGATIVE SAMPLES	COLIFORM POSITIVE	FECAL POSITIVE	INVALID SAMPLES	TOTAL QUARTERLY TOTALS
First Quarter Samples:	9024	34	3	13	9074
Second Quarter Samples:	9254	77	13	16	9360
Third Quarter Samples:	9413	101	23	14	9551
Fourth Quarter Samples:	9315	72	8	17	9412
Total Samples for 2001:	37,006	284	47	60	37,397

Key: QUARTER = Three month period; four quarterly periods in one year.
NEGATIVE = Samples with no coliform bacteria present.
COLIFORM POSITIVE= Samples with coliform bacteria present. (does not include fecal coliform)
FECAL POSITIVE= Samples with fecal coliform bacteria present.
INVALID = Samples not analyzed (too old, excessive chlorine, insufficient sample volume, empty, lost in mail, excess growth).

COMPLIANCE AND ENFORCEMENT

Water systems that failed to collect all required samples within the monthly compliance period were assessed a *routine monitoring violation*. When a water sample tests positive for coliform bacteria, water systems are required to collect three repeat samples (also called check samples). If the water system failed to collect one or more of these repeat (check) samples, the system was then assessed a *repeat monitoring violation*. Monitoring violations results in the system being required to issue public notification.

The system could have incurred a **maximum contaminant level (MCL)** violation if a number of water samples tested positive for total coliform, or the system could have incurred a more serious acute MCL violation if fecal coliform or E. coli were found in one or more of the total coliform positive samples. In both cases, the systems are required to notify the public of the violations by publication, direct mail and/or hand delivery. For acute MCL violations, systems

are required to provide notices to radio and television stations and contact KDHE within 24 hours of learning of the violation.

A summary of all monitoring and MCL violations during 2001 is presented in Table 4.

TABLE 4.
SUMMARY OF MONITORING VIOLATIONS AND
COLIFORM MCL VIOLATIONS IN 2001

TYPE OF VIOLATION	TOTAL # OF VIOLATIONS	# OF SYSTEMS IN VIOLATION	% OF SYSTEMS IN VIOLATION	% OF SYSTEMS IN COMPLIANCE
Monitoring - Major & Min (Routine & Repeat)	205	123	9%	91%
Non-Acute Coliform MCL	50	40	4%	96%
Acute Coliform MCL	7	7	1%	99%

A total of 205 bacteriological monitoring violations occurred during 2001. These 205 monitoring violations were incurred by 123 water systems.

A total of 40 water systems had Total Coliform MCL violations because water samples tested positive for coliform and/or fecal coliform bacteria. These 40 water systems, received a total of 50 acute and non-acute MCL violations.

Non-Acute MCL:

The standard is that no more than one sample per month (no more than 5% of samples for systems doing over 40 samples a month) may contain coliform.

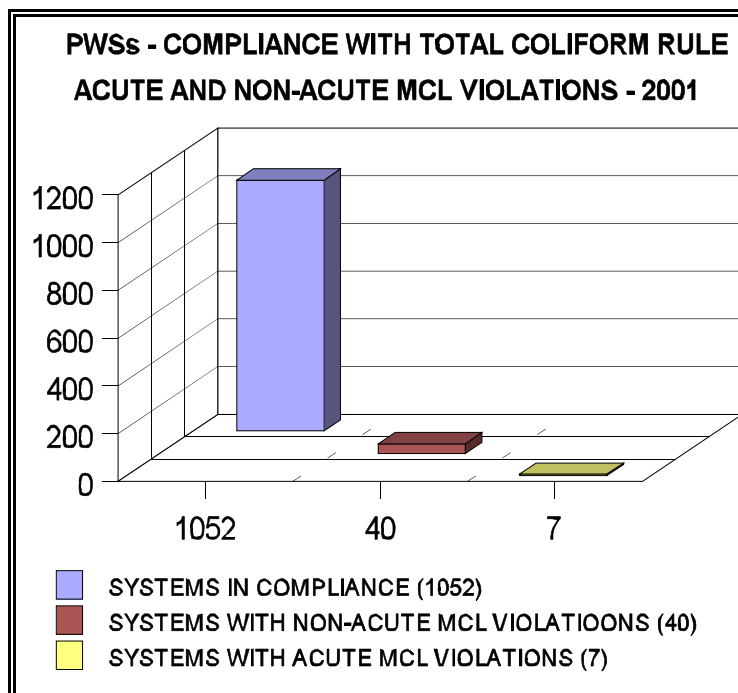
Acute MCL:

When total coliforms are present in any sample, that sample is also analyzed for fecal coliform or E. coli. Any fecal coliform positive repeat sample or E. coli positive repeat sample, or any total coliform positive repeat sample following a fecal coliform positive or E coli positive routine sample is an acute coliform violation.

Water systems that have recurring monitoring and/or MCL violations are subject to having an Administrative Order, with or without penalty, issued by KDHE. Before an Administrative Order is issued, KDHE first issues a Directive in an attempt to get the public water supply to correct the violation. During 2001, a Directive was issued to city of Elgin, and an Administrative Order was issued to the city of Timken.

Figure 4 shows a comparison between the water systems that incurred acute and non-acute MCL violations and those in compliance during 2001. Note that the same seven systems that had an acute MCL violation also had a non-acute total coliform violation the same month..

FIGURE 4.



*same 7 systems that had acute MCL violations also had non-acute total coliform violation.

VI. PHASE II/V CHEMICAL RULES

The Phase II/V Chemical Rule establishes **maximum contaminant levels (MCL)** and **treatment techniques** for various contaminants affecting drinking water, such as solvents, pesticides and herbicides, and heavy metals.

Kansas has adopted these federal drinking water regulations in the **Kansas Administrative Regulations (K.A.R.)**. All the contaminants regulated by this rule may be harmful to human health at certain concentrations and many are toxic and/or carcinogenic.

The Phase II/V rules contain five groups of contaminants:

- ◆ **ASBESTOS**
- ◆ **NITRATE/NITRITE**
- ◆ **INORGANIC CHEMICALS (IOC)**
- ◆ **VOLATILE ORGANIC COMPOUNDS (VOC)**
- ◆ **SYNTHETIC ORGANIC COMPOUNDS (SOC)**

The Phase II/V Rules apply to all community water systems and non-transient non-community water systems. The nitrate/nitrite section of this regulation also applies to transient non-community water systems. Water systems that purchase all their water from other systems are not required to monitor for these contaminants.

Water systems are required to monitor for contaminants under a standardized monitoring schedule consisting of three compliance periods of three years each. During these compliance periods, water systems are required to perform specific monitoring depending on the population served and whether they use surface or groundwater. The first three-year compliance period began January 1, 1993 and ended December 31, 1995. The second compliance period began January 1, 1996 and ended on December 31, 1998. The third compliance period began January 1, 1999 and will end on December 31, 2001.

Water systems using surface water are required to monitor more frequently than those using groundwater because surface water is more susceptible to contamination. Water systems with populations greater than 3,300 are also required to monitor more frequently than small systems with populations of 3,300 or less. The monitoring data presented in this report is for calendar year 2001, is the third year of the third monitoring period.

With the exception of asbestos, this regulation specifies that all the water samples must be collected at the **point of entry (POE)**. The POE is defined as a point after raw water has been treated (disinfected) and before it enters the distribution system.

Water systems are out of compliance with this rule by either failing to monitor or having an MCL violation. These violations require the system to issue public notice by notifying all their consumers of the violation using newspaper, television, radio, mail, and/or posted notices.

VI(a). Asbestos

Asbestos is a naturally occurring mineral found in the earth's crust in a fibrous form. Inhalation of asbestos fibers has been shown to produce lung tumors in humans. Ingestion of asbestos fibers greater than 10 micrometers in length has been shown to cause benign tumors in laboratory rats. To reduce the potential risk of cancer or other adverse health effects that have been observed in laboratory animals, EPA has set the drinking water standard for asbestos at 7 million fibers per liter (fibers longer than 10 micrometers).

Asbestos generally enters drinking water either from contact with natural mineral deposits or asbestos-cement pipes used in water distribution systems. Geologically, Kansas does not have any naturally occurring asbestos. Therefore, KDHE waived source water asbestos monitoring for all water systems. However, water systems that utilize asbestos-cement pipes in their distribution system were required to test for asbestos. To identify systems having asbestos-cement pipes in 1993, KDHE conducted a survey of all water systems. The results of this survey yielded 208 water systems having asbestos-cement pipe. These systems were required to monitor for asbestos in their distribution systems, before the end of the first compliance period (December 31, 1995).

ASBESTOS MONITORING RESULTS

All analyses for asbestos were performed by private certified laboratories during 1993 through 1995. Of the 208 water systems required to monitor for asbestos, 207 systems tested below 0.2 **million fibers per liter (MFL)** detection limit. Only one system had a concentration of asbestos greater than the MCL of 7 MFL. This system was required to perform public notice and monitor quarterly for asbestos during 1995. The results of this quarterly monitoring were consistently below the MCL. An investigation of the system determined the cause of the earlier asbestos MCL exceedance was due to a pigging operation (cleaning inside of pipes) involving asbestos cement pipes in the distribution system prior to the initial monitoring. Follow up monitoring indicated the system returned to compliance.

No monitoring of asbestos was required or done by any water system during 2001. K.A.R. 28-15-14(d)(3) states “a condition of the waiver shall be a requirement that a system takes a minimum of one sample while the waiver is effective. The term during which the waiver is effective shall not exceed one compliance cycle (9 years).

VI(b). Nitrate/Nitrite

Many drinking water contaminants, such as nitrate and nitrite are found naturally occurring in the environment. Nitrogen may find its way into the groundwater from decaying plant and animal matter, precipitation, and urban runoff. Fertilization of agricultural and urban land with ammonium nitrate, and runoff from livestock operations are also a significant source of nitrate contamination of groundwater.

Excessive amounts of nitrate and nitrite can cause methemoglobinemia in infants, also known as “blue-baby syndrome.” To safeguard infants from this condition, Kansas regulations (K.A.R. 28-15-13(b)) set the MCL at 10 **milligrams per liter (mg/l)** for nitrate and 1 mg/l for nitrite as the maximum allowable concentration in public drinking water supplies. Kansas regulations (K.A.R. 28-15-14(b)) require water systems with their own sources of water to monitor all their **points of entry (POE)** at least once a year for nitrate. Water systems that exclusively use purchased water from other systems are exempt from this monitoring.

Boiling the water will only concentrate nitrates in drinking water, and should not be attempted. Alternate source of drinking water should be provided for all infants less than six months of age, mothers nursing infants less than six months of age, and pregnant women.

The drinking water provided must meet the requirements of K.A.R. 28-15-13. If bottled water is chosen to meet this requirement, the water system shall obtain a certification from the bottled water supplier that the bottled water meets the appropriate requirements of the U.S. Food and Drug Administration concerning the source of the water and monitoring of water quality.

NITRATE MONITORING RESULTS

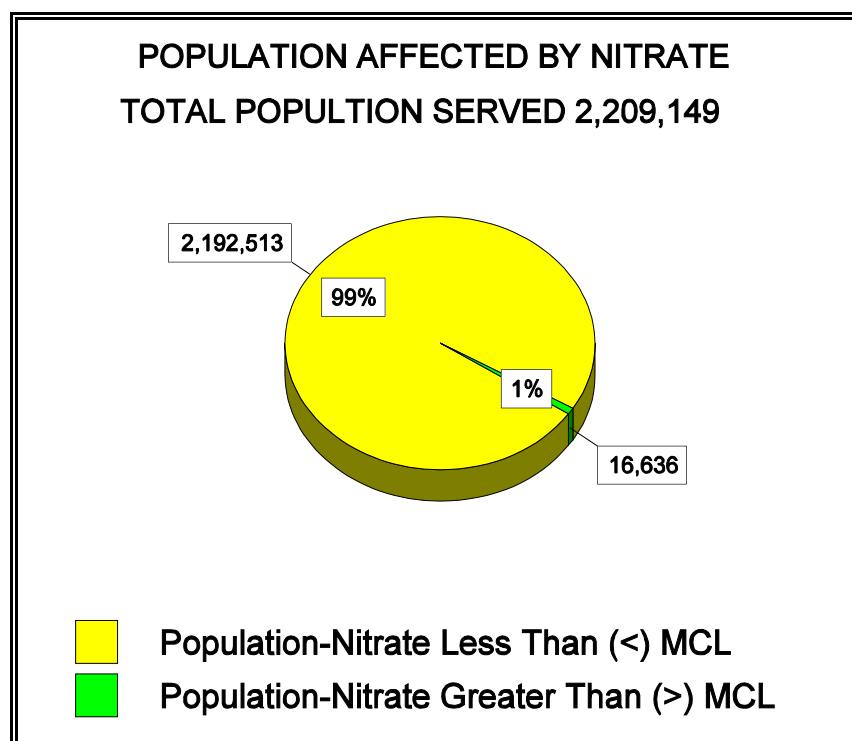
During 2001, 722 water systems were required to monitor from 1,095 POEs for nitrate. Twenty-four community water systems had analytical results greater than the nitrate MCL of 10 mg/l. Four non-community water systems had analytical results greater than 10 mg/l, but below the allowable 20 mg/l. The minimum concentration was below the detection limit and the maximum concentration reported was 26.60 mg/l, city of Long Island. Long Island received funds from the Kansas Public Water Supply Loan Fund to construct new wells.

The names of water systems that incurred nitrate monitoring and MCL violations during 2001 are listed in Appendix B.

The water system with the largest population affected by nitrate MCL violations was the city of Hiawatha, with a population of 3,417. The city of Hiawatha has 3 POEs, but only 1 POE was affected by the exceedance.

The total population served by all water systems monitoring for nitrate was 2,209,149. The total population of water systems with no POE monitoring results exceeding the nitrate MCL was 2,192,513. The total population of water systems with a POE monitoring result exceeding the MCL was 16,636, which equals less than one percent of the total population. Figure 6 shows the population affected by nitrate MCL violations in comparison with the population of water systems in compliance.

FIGURE 6.



COMPLIANCE AND ENFORCEMENT

Water systems with nitrate monitoring results above the MCL or failing to monitor were required to do public notice and provide proof to KDHE that public notice was performed. All water systems with nitrate violations performed the required public notice, except Sappa Valley Youth Ranch during fourth quarter 2001. Water systems with MCL violations were also required to monitor for nitrate at least quarterly.

During 2001, KDHE issued Nitrate Consent Orders for: Almena, Burr Oak, Grant Co. Feeders MHP-Ulysses, Robinson and Sappa Valley Youth Ranch-Oberlin.

Other water systems that are operating under Consent Orders are currently looking for new sources of water that meet all MCL requirements for drinking water.

VI(c). Inorganic Chemicals

Kansas regulations (K.A.R. 28-15-13(b)) set MCLs for nine metals and two non-metal contaminants. Table 5, on the following page lists these IOC contaminants and their MCLs in **milligrams per liter (mg/l)**. Most of these IOCs occur naturally in the environment and are soluble in water. Because of this, they are potential contaminants of drinking water. Not all IOCs originate from natural mineral deposits. Industrial activities such as metal finishing, textile manufacturing, mining operations, electroplating, manufacturing of fertilizers, paints, and glass can also generate these contaminants.

Inorganic contaminants can be toxic to humans at certain levels. Cadmium, chromium, and selenium can cause damage to the kidneys, liver and nervous and circulatory systems. Barium has been associated with high blood pressure and mercury has been shown to damage kidneys. Antimony, beryllium, cyanide, nickel and thallium have been shown to damage the brain, lungs, kidneys, heart, spleen and liver.

IOCs can be removed from drinking water using various available technologies such as coagulation/filtration, lime softening, reverse osmosis, ion exchange, oxidation, activated alumina, and granular activated carbon.

TABLE 5.
REGULATED INORGANIC CHEMICALS (IOC)

Chemical Name	Maximum Contaminant Level (MCL)
<i>Antimony</i>	<i>0.006 mg/l</i>
<i>Arsenic</i>	<i>0.05 mg/l</i>
<i>Barium</i>	<i>2 mg/l</i>
<i>Beryllium</i>	<i>0.004 mg/l</i>
<i>Cadmium</i>	<i>0.005 mg/l</i>
<i>Chromium</i>	<i>0.1 mg/l</i>
<i>Cyanide</i>	<i>0.2 mg/l</i>
<i>Fluoride</i>	<i>4 mg/l</i>
<i>Mercury</i>	<i>0.002 mg/l</i>
<i>Selenium</i>	<i>0.05 mg/l</i>
<i>Thallium</i>	<i>0.002 mg/l</i>

IOC MONITORING FREQUENCY

All community and non-transient non-community water systems are required to monitor each **point of entry (POE)** for IOCs. Water systems using groundwater as their sole source must monitor at least once during every three year compliance period (1999 through 2001). Systems using surface water as a source must monitor for IOCs at least once a year. Systems exclusively purchasing treated water as their source are exempt from this monitoring.

Water systems incurring a MCL violation are required to increase their monitoring to at least quarterly. Water systems having a MCL or monitoring violation are required to notify their customers of such violations by issuing a public notice.

IOC MONITORING RESULTS

During 2001, 262 water systems monitored for IOCs. One water system, city of Norwich, failed to collect its annual nitrate sample during 2001 and received a monitoring violation. Selenium was the only inorganic chemical detected above the MCL. Three water systems incurred 10 selenium MCL violations. These three systems had high levels of selenium detected since 1998, and were monitoring quarterly for selenium during 2001. The three water systems in violation of the selenium MCL represent less than one percent of the total systems in Kansas, resulting in a compliance rate greater than 99 percent.

The total population affected by these selenium MCL violations was 982. The average population of water systems with a selenium MCL violation was 327.

All other IOC results were at or below MCLs. The names of systems that incurred an IOC monitoring violation or selenium MCL violation are listed in Appendix B.

VI(d) Volatile Organic Compounds

Volatile organic compounds (VOC) are commonly referred to as organic solvents. These compounds are constituents of many degreasers, industrial cleaners, spot/stain removers, paint thinners, in some paints, varnishes and lacquers, in many paint removers/strippers, in many pesticides/herbicides, in most dry cleaning chemicals, in many printing inks and printing press chemicals, in most petroleum products including many types of fuels. Most of these compounds are flammable and toxic to varying degrees. Because of these characteristics, they are also a potential source of environmental pollution and pose a health hazard when present in drinking water.

Kansas has established regulations governing VOCs in drinking water. These regulations, K.A.R. 28-15-14, specify when a water systems must monitor their POE for VOC contaminants. Large water systems, serving populations of more than 3,300 people, are required to sample each POE at least annually. Small water systems serving populations of 3,300 or less are required to sample each POE at least once during the three year compliance period (1999 through 2001). If any contaminants are detected during this regular monitoring additional monitoring is required.

Table 6 shows a list of the regulated volatile organic compounds tested by KDHE.

TABLE 6.

REGULATED VOLATILE ORGANIC COMPOUNDS (VOC)

Compound Name	MCL	Uses
<i>Benzene</i>	0.005 mg/l	<i>fuels, pesticides, paints, pharmaceutical</i>
<i>Carbon tetrachloride</i>	0.005 mg/l	<i>degreasing agents, fumigants</i>
<i>Chlorobenzene</i>	0.1 mg/l	<i>industrial solvents, pesticides</i>
<i>cis-1,2 Dichloroethylene</i>	0.07 mg/l	<i>industrial solvents, chemical manufacturing</i>
<i>Dichloromethane</i>	0.005 mg/l	<i>paint strippers, refrigerants, fumigants</i>
<i>Ethylbenzene</i>	0.7 mg/l	<i>gasoline, insecticides</i>
<i>o-Dichlorobenzene</i>	0.6 mg/l	<i>insecticides, industrial solvents</i>
<i>p-Dichlorobenzene</i>	0.075 mg/l	<i>insecticides, moth balls</i>
<i>Styrene</i>	0.1 mg/l	<i>plastics, synthetic rubber, resins</i>
<i>Tetrachloroethylene</i>	0.005 mg/l	<i>dry cleaning/industrial solvents</i>
<i>trans-1,2 Dichloroethylene</i>	0.1 mg/l	<i>industrial solvents, chemical manufacturing</i>
<i>Trichloroethylene</i>	0.005 mg/l	<i>paint strippers, dry cleaning, degreasers</i>
<i>Vinyl chloride</i>	0.002 mg/l	<i>plastics/synthetic rubber, solvents</i>
<i>Xylenes</i>	10 mg/l	<i>paints/inks, solvents, synthetic fibers, dyes</i>
<i>1,1 Dichloroethylene</i>	0.007 mg/l	<i>paints, dyes, plastics</i>
<i>1,1,1 Trichloroethane</i>	0.2 mg/l	<i>metal cleaning/degreasing agent</i>
<i>1,1,2 Trichloroethane</i>	0.005 mg/l	<i>industrial degreasing solvents</i>
<i>1,2 Dichloroethane</i>	0.005 mg/l	<i>gasoline, insecticides</i>
<i>1,2 Dichloropropane</i>	0.005 mg/l	<i>soil fumigants, industrial solvents</i>
<i>1,2,4 Trichlorobenzene</i>	0.07 mg/l	<i>industrial solvents</i>

VOC MONITORING RESULTS

During 2001, 252 water systems monitored from 504 POEs for all regulated and unregulated VOCs.

VOC monitoring during 2001, concluded with no water systems having any water samples test greater than the MCL for any VOC. No water system incurred a VOC monitoring violation during 2001.

VI(e) Synthetic Organic Compounds

Synthetic organic compounds (SOC) are man-made compounds, many of which are chlorinated and used as herbicides, pesticides, fungicides and insecticides. Kansas regulation, K.A.R. 28-15-14, requires water systems to monitor their drinking water for 33 SOCs. MCLs for each of these SOC contaminants is set by Kansas regulation, K.A.R. 28-15-13.

Water systems failing to monitor or incurring an MCL violation for any of the compounds listed in Table 7 must notify the public of such violation and provide proof of performing such public notice to KDHE.

Table 7 shows a list of the regulated synthetic organic compounds tested by KDHE.

TABLE 7.

REGULATED SYNTHETIC ORGANIC COMPOUNDS (SOC)

Compound Name	MCL	Uses
<i>Alachlor (Lasso)</i>	0.002 mg/l	herbicide
<i>Aldicarb</i>	0.003 mg/l	insecticide
<i>Aldicarb sulfoxide</i>	0.003 mg/l	insecticide
<i>Aldicarb sulfone</i>	0.003 mg/l	insecticide
<i>Atrazine (Atranex, Crisazina)</i>	0.003 mg/l	herbicide
<i>Benzo(a)pyrene</i>	0.0002 mg/l	coal tar lining & sealants
<i>Carbofuran (Furadan 4F)</i>	0.04 mg/l	rootworm, weevil control
<i>Chlordane</i>	0.002 mg/l	termite control
<i>Dalapon</i>	0.2 mg/l	herbicide
<i>Dibromochloropropane(DBCP, Nemaflume)</i>	0.0002 mg/l	pesticide, nematocide, soil fumigant
<i>2,4-D (2,4-dichlorophenoxyacetic acid)</i>	0.07 mg/l	herbicide, defoliant
<i>2,4,5-TP (Silvex)</i>	0.05 mg/l	herbicide, defoliant
<i>Di(diethylhexyl)adipate</i>	0.4 mg/l	plasticizer
<i>Di(diethylhexyl)phthalate</i>	0.006 mg/l	plasticizer
<i>Dinoseb (2,4-dinitro-6-sec-butylphenol)</i>	0.007 mg/l	insecticide, herbicide
<i>Diquat</i>	0.02 mg/l	herbicide
<i>Endothall</i>	0.1 mg/l	herbicide, defoliant
<i>Endrin</i>	0.002 mg/l	insecticide
<i>Ethylene Dibromide (EDB, Bromofume)</i>	0.0005 mg/l	gasoline additive, fumigants, & solvents
<i>Glyphosate</i>	0.7 mg/l	herbicide
<i>Heptachlor (H-34, Heptox)</i>	0.0004 mg/l	termite control
<i>Heptachlor epoxide</i>	0.0002 mg/l	insecticide
<i>Hexachlorobenzene</i>	0.001 mg/l	by-product of solvents & pesticides
<i>Hexachlorocyclopentadiene</i>	0.05 mg/l	pesticide, fungicide
<i>Lindane</i>	0.0002 mg/l	pesticide
<i>Methoxychlor (DMDT, Marlate)</i>	0.04 mg/l	insecticide
<i>Oxamyl (Vydate)</i>	0.2 mg/l	insecticide
<i>Pentachlorophenol (PCP)</i>	0.001 mg/l	herbicide, fungicide, wood preservative
<i>Picloram (Tordon)</i>	0.5 mg/l	herbicide, defoliant
<i>Polychlorinated Biphenyls (PCB, Aroclors)</i>	0.0005 mg/l	herbicide
<i>Simazine</i>	0.004 mg/l	herbicide
<i>2,3,7,8 TCDD (Dioxin)</i>	3E-8 mg/l	pesticide byproduct
<i>Toxaphene</i>	0.003 mg/l	pesticide

MONITORING FREQUENCY

During the first compliance period of 1993 through 1995, all required water systems performed monitoring for all SOC's listed in Table 7 above, with the exception of the chemicals previously waived. **Atrazine** and **ethylene dibromide (EDB)** were the only contaminants in the SOC group that were detected over their MCL during this first compliance period.

Based on these monitoring results, KDHE with EPA approval, allowed water systems to only monitor for atrazine and EDB during the subsequent compliance period of 1996 through 1998. Other than atrazine, a widely use herbicide, no other contaminants were detected by themselves. Alachlor, the only other pesticide detected, always appeared in conjunction with atrazine.

Water systems utilizing groundwater are required to monitor each POE at least once during the three year compliance period (1999-2001). Small systems (population \leq 3,300) utilizing surface water were required to monitor their POE a minimum of one quarter during the three year compliance period; collecting the water sample during the months of May or June. Large surface water systems (population $>$ 3,300) were required to monitor their POE at least annually during the months of May or June.

Water systems using groundwater, that had no SOC's detected during the first compliance period (1993-95), tested for atrazine during 1996 through 1998, using an immunoassay method (EPA Method 4670). This immunoassay method was used because it is highly sensitive in detecting any contaminant in the triazine chemical family and is one fourth the cost of the regular drinking water method (EPA Method 507).

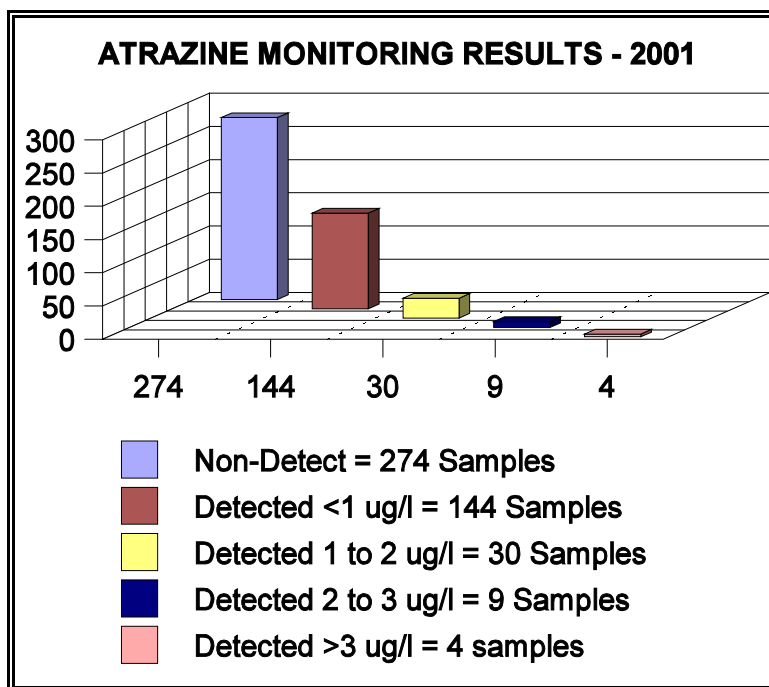
Groundwater systems with previous SOC detects and all surface water systems were required to perform the regular atrazine testing using EPA Method 507. This Method also detects alachlor, the only other pesticide detected during the previous compliance period.

SOC MONITORING RESULTS

A total of 272 water systems collected water samples from 461 POEs for atrazine testing during 2001. None of these water systems exceeded the MCL of 3.0 **micrograms per liter ($\mu\text{g/l}$)** (yearly running average).

Of the 461 POE water samples collected during 2001, 274 samples or 59% percent showed atrazine detected, 144 detected atrazine at concentrations below 1.0 $\mu\text{g/l}$, 30 at concentrations between 1.0 and 2.0 $\mu\text{g/l}$, 9 at concentrations between 2.0 and 3.0 $\mu\text{g/l}$, and 4 were greater than the MCL of 3.0 $\mu\text{g/l}$. See Figure 7.

FIGURE 7.



VII. UNREGULATED CONTAMINANTS

The 1996 SDWA Amendments require EPA to mandate monitoring for unregulated contaminants (UCMR) of all community public water supply systems and non-transient, non-community water systems serving over 10,000 people, and randomly selected small water supply systems. The unregulated contaminant monitoring information will be used to develop a database to help guide EPA's efforts to select drinking water contaminants for future regulation. Effective January 1, 2001, there are three levels of monitoring, involving different numbers of systems and different contaminant lists. All water systems must all use an EPA designated laboratory following UCMR quality control specifications. The three levels are: (1) Assessment monitoring for List 1 contaminants-must be done within the three years of 2001 through 2003. (2) Screening Survey for List 2 contaminants, and (3) Pre-Screen Testing, which is only required for a small subset of systems that are most vulnerable to List 3 contaminants.

The small systems selected in Kansas are: 1) City of Olmitz 2) City of Park City 3) City of Wellington and 4) Nemaha Co. RWD#3. The unregulated contaminant monitoring information will be used to develop a database to help guide EPA's efforts to select drinking water contaminants for future regulation. Surface water systems must monitor 4 consecutive quarters, and ground water systems must monitor twice, approximately six months apart for List 2 chemical contaminants. One of these quarterly or semi-annual sampling events must occur in the most vulnerable period of May through July, to ensure monitoring of seasonally elevated contaminant concentrations. Below are the three UCMR lists.

List I - Assessment Monitoring

Contaminant	Analytical Methods
2,4-dinitrotoluene	EPA 525.2
2,6-dinitrotoluene	EPA 525.2
Acetochlor	EPA 525.2
DCPA mono-acid degradate* DCPA di-acid degradate*	EPA 515.1, EPA 515.2, EPA 515.3, EPA 515.4, D5317-93, AOAC 992.32
4,4-DDE	EPA 508, EPA 508.1, EPA 525.2, D5812-96, AOAC 990.06
EPTC	EPA 507, EPA 525.2, D5475-93, AOAC 991.07
MTBE	EPA 502.2, EPA 524.2, D5790-95, SM6210D, SM6200B, SM6200C
Molinate	EPA 507, EPA 525.2, D5475-93, AOAC 991.07
Nitrobenzene	EPA 524.2, D5709-95, SM6210D, SM620B
Perchlorate	EPA 314.0
Terbacil	EPA 507, EPA 525.2, D5475.93, AOAC 991.07

* DCPA degradates are not separately determined by these methods, therefore, they will be reported as the sum of both degradates.

List 2 - Screening Survey

Contaminant	Analytical Method
1,2-diphenylhydrazine	EPA Method 526
2,4,6-trichlorophenol	EPA Method 528
2,4-dichlorophenol	EPA Method 528
2,4-dinitrophenol	EPA Method 528
2-methyl-phenol	EPA Method 528
Alachlor ESA and degradation byproducts of acetanilide pesticides	Being Refined *
Diazinon	EPA Method 526
Disulfoton	EPA Method 526
Diuron	EPA Method 532
Fonofos	EPA Method 526
Linuron	EPA Method 532
Nitrobenzene	EPA Method 526
Prometon	EPA Method 526
RDX	Being Refined *
Terbufos	EPA Method 526
Aeromonas	1605

* Candidate for a 3rd Screening Survey, if conducted

List 3 - Prescreen Testing

Contaminant	Analytical Method
Lead-210	In Development
Polonium-210	In Development
Adenoviruses	No suitable method currently available
Cyanobacteria(blue-green algae), other fresh water algae, and their toxins	Methods available, but not standardized
Caliciviruses	No suitable method currently available
Coxsackieviruses	Methods available, but not standardized
Echoviruses	Methods available, but not standardized
Helicobacter pylori	No suitable method currently available
Microsporidia	No suitable method currently available

Results must be reported to the public under Consumer Confidence Rule (CCR) and Public Notification requirements.

VIII. LEAD AND COPPER

High exposure to metals has long been recognized as a cause of adverse health effects in humans. Lead has been singled out because of its possible appearance in drinking water and its high toxicity to humans. Copper, although an essential nutrient, also poses a health threat at elevated levels. Young children are especially susceptible to the toxic effects of these metals.

Lead and copper found in water pipes and in old plumbing solder can leach into the drinking water. Besides leaching from water pipes and solder, lead and copper can also leach from brass water faucet fixtures. As a step to reduce lead in drinking water, regulations prohibit the use of lead water pipes and lead plumbing solder.

KDHE regulations govern lead and copper in drinking water and can be found at K.A.R. 28-15-22. These regulations apply to all community water systems and non-transient non-community water systems. These water systems are required to monitor for lead and copper on a scheduled basis. If monitoring results indicate unacceptable levels of lead or copper, the water system is required to initiate corrosion control treatment techniques to minimize lead and/or copper contamination. Action levels set by this regulation are 0.015 milligrams per liter (mg/l) (15 micrograms per liter ($\mu\text{g/l}$)) for lead and 1.3 mg/l (1,300 $\mu\text{g/l}$) for copper.

LEAD AND COPPER MONITORING RESULTS

One hundred and fifty-three water systems were scheduled to monitor for lead and copper during 2001. Eleven systems incurred monitoring violations by failing to perform their required routine and follow-up tap sampling. These eleven water systems were required to complete public notification.

Eight systems exceeded the copper action level and were required to implement corrosion control treatment. One system failed to submit the required treatment recommendation, and two systems failed to install corrosion control treatment, for a total of three treatment technique violations. Notices of violation were sent to the three systems requiring them to complete public notice.

These lead and copper violations translate to a 93% compliance rate for monitoring and a 83% compliance rate for treatment installation and public education. The names of the systems which incurred violations of this regulation during 2001 are listed in Appendix B.

IX. DISINFECTION BY-PRODUCTS

To ensure drinking water is safe and pathogen free it must be disinfected. The most commonly used method of disinfection is chlorination. Unfortunately, the chlorine added to water to kill harmful microorganisms also combines with organic matter naturally present in water to form chemical compounds called **trihalomethanes** or **THMs**. These THMs are suspected of being carcinogens.

Because of this concern, Kansas (K.A.R. 28-15-13), established a maximum contaminant level of 0.1 **milligrams per liter (mg/l)** for total THMs (**TTHM**) in drinking water. Compliance with this MCL of 0.1 mg/l is determined by adding the concentrations of all THMs detected in a water sample collected from the distribution system.

This regulation requires all water systems serving 10,000 or more people to monitor for THMs on a quarterly basis. Water systems with TTHM results over the MCL of 0.1 mg/l must notify their customers by issuing public notice for the MCL violation. The following table shows the four THMs that must be monitored for in drinking water.

TABLE 8.

TRIHALOMETHANES (THMs)

TRICHLOROMETHANE (CHLOROFORM)	(CHCl ₃)
TRIBROMOMETHANE (BROMOFORM)	(CHBr ₃)
BROMODICHLOROMETHANE	(CHBrCl ₂)
DIBROMOCHLOROMETHANE	(CHBr ₂ Cl)

MONITORING RESULTS FOR THMs

Forty two water systems were required to monitor for THMs during 2001. Most large water systems in Kansas are surface water systems. Surface water generally has more suspended and dissolved organic material than groundwater. Of the 42 water systems monitoring THMs, 26 were surface water and 16 were groundwater systems. Three water systems received 7 MCL violations during 2001. A 93 percent compliance rate was achieved for this regulation during 2001. The names of the systems which incurred violations of this regulation during 2001 are listed in Appendix B.

X. SURFACE WATER TREATMENT

Almost one third (365) of all water systems in Kansas use surface water for part or all of their drinking water. This includes systems that purchase their water. These water systems provide drinking water to about two thirds of the Kansas population. Water for these systems originates from rivers or man-made reservoirs located throughout the state.

Unlike most groundwater that is protected by the earth's crust, surface water is exposed to the atmosphere and surface runoff. This exposure makes surface water more vulnerable to contamination than most groundwater. For this reason, a regulation has been developed specifically for surface water and groundwater under the influence of surface water, such as springs and shallow wells which are susceptible to surface contamination.

Kansas regulation (K.A.R. 28-15-21), address as specific treatment requirements for surface water. This regulation requires that surface water systems, "provide filtration and disinfection treatment of source water. This regulation is known as the **surface water treatment rule** or **SWTR**.

This regulation requires water systems to filter the water, and keep a record of turbidity readings of the treated water entering the distribution system. High turbidity levels adversely affect the efficiency of the disinfection process, contribute to the undesirable formation of **trihalomethanes (THMs)**, and indicate viruses or Giardia Lamblia may be present. For these reasons turbidity limits are set depending on the type of filtration used.

The maximum allowable for any single finished water turbidity reading is 5.0 **nephelometric turbidity units (NTU)**. Additionally, for a system to be in compliance, at least 95 percent of the filtered water samples during a month must have turbidity levels less than or equal to 0.5 NTU.

These regulations also require that the filtering process in conjunction with the disinfection treatment remove or inactivate 99.99 percent of viruses and 99.9 percent of Giardia Lamblia cysts. The presence of viruses in drinking water can cause stomach cramps and/or gastroenteritis (intestinal distress). The chlorine (disinfectant) concentration in the water entering the distribution system is required to be at least 0.2 mg/l of free chlorine or 1.0 mg/l of combined chlorine. Chlorine residual readings must be taken daily at set intervals and recorded by the water operator. Turbidity and disinfection records are required to be submitted to KDHE on a monthly basis for compliance determination.

SURFACE WATER MONITORING RESULTS

There were a total of 103 systems monitoring for compliance (including systems using groundwater under the influence of surface water, surface water and a combination of ground and surface waters) under the SWTR regulations. During 2001, 15 water systems incurred 22 violations of the surface water treatment technique regulation. 12 water systems incurred 15 monitoring, or routine/repeat violations.

These water systems had a monitoring compliance rate of 91 percent and a treatment technique compliance rate of 93 percent. 10 systems performed public notification as required of such violations to their customers. The names of the systems which incurred violations of this regulation during 2001 are listed in Appendix B.

XI. RADIONUCLIDES

Most radiation occurs naturally and is readily present in the environment. Radiation in groundwater commonly occurs when water comes in contact with the natural decay of uranium in rocks and soils. In most circumstances, this radiation occurs at such low levels it is harmless to human health. The purpose of the radionuclides rule is to reduce the exposure to radionuclides in drinking water, and therefore, reduce the risk of cancer, and toxic kidney effects from uranium. This rule will also improve public health protection by reducing exposure to all radionuclides.

Occasionally, in some areas of the state, these radiation levels occur at higher levels which may present a risk to human health. For this reason, regulations which have been adopted require communities water systems to monitor their drinking water for radionuclides. Only community water systems are required to monitor their drinking water for radionuclides.

EPA has revised the current radionuclides regulation and set a standard for uranium 30 ug/L. Water systems with monitoring results greater than the MCL will be required to monitor quarterly until four consecutive quarters are below the MCL. These water systems will also be required to issue a public notice informing their customers of the MCL violation. Prior to 2002, there was no standard for uranium, but monitoring started in 1984. The rule retains the existing MCLs for combined radium 226 and radium 228, gross alpha particle radioactivity, and beta particle and photon activity. The rule regulates uranium for the first time.

Table 9 lists the radiological contaminants along with their common sources, and the corresponding MCLs as set by Kansas regulations (K.A.R. 28-15-13 (d) (1)).

**TABLE 9.
RADIONUCLIDES**

CONTAMINANT	SOURCES / USES	MCL
Gross alpha	natural decay of uranium in rocks and soil	15 pCi/l
Gross beta	natural decay of uranium in rocks and soil, nuclear weapon production, pharmaceuticals	50 pCi/l or 4 mrem/yr
Radium 226 & 228	natural decay of uranium in rocks and soil	5 pCi/l
Strontium-90	artificial isotope, used in research and medicine, in industrial density measuring devices, in atomic batteries, in luminous paint	8 pCi/l
Tritium	man-made isotope, used as chemical tracer in research, in nuclear weapons production, in luminous instrument dials	20,000 pCi/l
Uranium	natural decay of uranium in rocks and soil	30 ug/L

Key: pCi/l = picoCurie per liter
mrem/yr = millirem per year

MONITORING RESULTS FOR RADIONUCLIDES

Three water systems incurred three MCL violations for combined radium 226 & 228 during 2001. The population affected by these MCL violations were 892. These water systems were notified by KDHE of the MCL violations and required to issue public notice. No water systems had radionuclide monitoring violations during 2001. The names of the systems which incurred radiological MCL violations are listed in Appendix B.

XII. CONSUMER CONFIDENCE REPORT (CCR)

The Consumer Confidence Report (CCR) rule is a new requirement from the 1996 Safe Drinking Water Act. It gives consumers more information on their drinking water quality and opportunities to get involved in protecting their source of water.

Under the CCR rule, all community water systems (CWSs) are required to provide customers with an annual water quality report or CCR. EPA specified certain health risk language for the reports, and required water systems to distribute these reports annually to all of their customers. CCRs summarize information to help educate and inform customers about their water system.

The guiding principle behind Consumer Confidence Reports is that all people have the right to know what is in their drinking water and where it comes from.

The CCR rule required the first report to contain data used to determine compliance in calendar year 1998, and to be delivered by October 1, 1999. All subsequent annual reports are due by July 1 and will include information from the previous calendar year.

By July 1, 2001, 915 community water systems were to deliver the CCR for calendar year 2000 to their customers, and send a copy of the actual report and a certificate of mailing to KDHE. The number of facilities in violation for not delivering a copy of their CCR to their customers by July 1, 2001 was 317. Notices of the violation were sent to the facilities on August 24, 2001, followed by phone calls to non-responding water systems. All but 4 facilities submitted the required annual report. The names of the systems that are in violation of the CCR rule are listed in Appendix B.

XIII. SUMMARY

Appendix A lists the number of MCL, treatment technique, and monitoring/reporting violations by regulated parameter. There were no violations for the majority of parameters. The following is a summary of parameters which incurred violations.

Bacteriological monitoring resulted in 47 water systems having coliform MCL violations, 7 of which also incurred acute MCL violations. These monitoring results translate to 95 percent of all systems being in compliance. The population affected by these MCL violations was 89,176 or less than 6 percent of the population served by all water systems. The number of systems with total coliform major monitoring violations was 34, with 53 violations. The population affected by these monitoring violations was 25,288 or 0.3 percent of the population served by all systems. Overall, 186 water systems had at least one bacteriological MCL or monitoring violation during 2001. This means that 913 systems or 97 percent of water systems were in compliance with the total coliform rule.

In the organic contaminant group (**VOCs** and **SOCs**), no water systems incurred a monitoring or MCL violation during 2001.

In the inorganic contaminants (**IOCs**) group, **nitrate** and **selenium** were the only contaminants detected above the MCL during 2001. **Nitrate** MCL violations occurred in 28 out of 722 systems monitoring. This translates to a compliance rate of 97 percent of water systems in compliance. The population affected by these nitrate MCL violations was 16,636, or less than 1 percent of the total population served in Kansas.

Selenium was detected above the MCL in three of the 138 water systems required to monitor during 2001. This translates to 99 percent of water systems in compliance. The population affected by these three selenium MCL violations was 982 or less than 1 percent of the total population served in Kansas.

Lead and copper monitoring resulted in 11 water systems with monitoring violations. The number of systems monitoring for lead and copper was 153. During 2001, 94 percent of water systems were in compliance with monitoring requirements with less than 2 percent of systems incurring monitoring violations. Eight systems exceeded lead or copper action levels. Two systems failed to install corrosion control treatment and one failed to submit a treatment recommendation. systems failed to do required public education after exceeding the lead action level.

Disinfection by-product monitoring for **THMs** resulted in 3 water system received 7 violations during 2001. Three water systems incurred an MCL violations. These results translate to a THM compliance rate of 93 percent during 2001.

The **surface water treatment rule (SWTR)** had 27 water systems out of 103 water systems using surface water incurred violations. Of the 27 systems with violations, 15 water systems had 22 treatment technique violations, leaving 93 percent of water systems in compliance. 12 water systems had 15 monitoring/reporting violations, leaving 91 percent of water systems in compliance. Collectively, these results placed 74 percent of all systems regulated by the SWTR in compliance during 2001.

Radionuclide monitoring resulted in three water systems detecting radium 226/228 above the MCL. This amounts to a compliance rate of 99 percent with less than one percent of systems

being in violation. The population affected by these radium MCL violations was 892.

The overall compliance rate for Kansas public water supplies with drinking water regulations during 2001 was 76 percent. A total of 259 water systems incurred at least one violation of a drinking water regulation. This left 840 water systems operating out of the 1,099 water systems having no violations during 2001.

Eighty-seven percent of the Kansas population was served by water systems in compliance with federal and state drinking water regulations during 2001. Of the 2,538,840 people served by all water systems, 2,213,667 people were not affected by any violations. Only 9 percent, or 325,173 people, were affected by water systems that had a monitoring or MCL violations.

The following table, shows the percentage of all water systems that had no monitoring and/or MCL violations occurring during 2001 for each specific drinking water regulation.

TABLE 10.
WATER SYSTEMS COMPREHENSIVE COMPLIANCE SUMMARY
FOR ALL VIOLATIONS

REGULATION	% IN COMPLIANCE
Total Coliform Rule - Monitoring Major & Minor Non-Acute Coliform	91 % 96 %
Nitrate / Nitrite	97 %
Inorganic Chemicals (IOCs)	99 %
Volatile Organic Compounds (VOCs)	100 %
Synthetic Organic Compounds (SOCs)	100 %
Total Trihalomethanes (TTHMs)	93 %
Lead and Copper Rule	94 %
Surface Water Treatment Rule	92%
Radionuclides Rule	99 %

Table 11, below, shows a comparison of the overall compliance percentages for all water systems over the last three years.

TABLE 11.
WATER SYSTEMS COMPLIANCE COMPARISON
FOR 1999, 2000, AND 2001

REGULATION	1999	2000	2001
Total Coliform Rule	91 %	97 %	Non-Acute - 96% Mon. Major/Min.-97%
Nitrate	97 %	97 %	97%
Inorganic Chemicals (IOCs)	99 %	99 %	99%
Volatile Organic Compounds (VOCs)	100 %	100 %	100%
Synthetic Organic Compounds (SOCs)	100 %	100 %	100%
Total Trihalomethanes (TTHMs)	100 %	99 %	93%
Lead and Copper Rule	99%	99 %	94%
Surface Water Treatment Rule	88 %	93 %	92%

Appendix A
Violations Table
(with SDWIS Codes)

State:	KANSAS
Reporting Interval:	2001 Calendar Year

SDWIS Codes		MCL (mg/l) ¹	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
			Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
	Organic Contaminants (VOC / SOC)							
2981	1,1,1-Trichloroethane	0.2	0	0			0	0
2977	1,1-Dichloroethylene	0.007	0	0			0	0
2985	1,1,2-Trichloroethane	0.005	0	0			0	0
2378	1,2,4-Trichlorobenzene	0.07	0	0			0	0
2931	1,2-Dibromo-3-chloropropane (DBCP)	0.0002	0	0			0	0
2980	1,2-Dichloroethane	0.005	0	0			0	0
2983	1,2-Dichloropropane	0.005	0	0			0	0
2063	2,3,7,8-TCDD (Dioxin)	3x10 ⁻⁸	0	0			0	0
2110	2,4,5-TP	0.05	0	0			0	0
2105	2,4-D	0.07	0	0			0	0
2265	Acrylamide				0	0		

State: KANSAS

**Reporting
Interval: 2001 Calendar Year**

SDWIS Codes		MCL (mg/l) ¹	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
			Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
2051	Alachlor	0.002	0	0			0	0
2050	Atrazine	0.003	0	0			0	0
2990	Benzene	0.005	0	0			0	0
2306	Benzo[a]pyrene	0.0002	0	0			0	0
2046	Carbofuran	0.04	0	0			0	0
2982	Carbon tetrachloride	0.005	0	0			0	0
2959	Chlordane	0.002	0	0			0	0
2380	cis-1,2-Dichloroethylene	0.07	0	0			0	0
2031	Dalapon	0.2	0	0			0	0
2035	Di(2-ethylhexyl)adipate	0.4	0	0			0	0
2039	Di(2-ethylhexyl)phthalate	0.006	0	0			0	0
2964	Dichloromethane	0.005	0	0			0	0
2041	Dinoseb	0.007	0	0			0	0
2032	Diquat	0.02	0	0			0	0
2033	Endothall	0.1	0	0			0	0
2005	Endrin	0.002	0	0			0	0

State:	KANSAS
Reporting Interval:	2001 Calendar Year

SDWIS Codes		MCL (mg/l) ¹	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
			Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
2257	Epichlorohydrin				0	0		
2992	Ethylbenzene	0.7	0	0			0	0
2946	Ethylene dibromide	0.00005	0	0			0	0
2034	Glyphosate	0.7	0	0			0	0
2065	Heptachlor	0.0004	0	0			0	0
2067	Heptachlor epoxide	0.0002	0	0			0	0
2274	Hexachlorobenzene	0.001	0	0			0	0
2042	Hexachlorocyclopentadiene	0.05	0	0			0	0
2010	Lindane	0.0002	0	0			0	0
2015	Methoxychlor	0.04	0	0			0	0
2989	Monochlorobenzene	0.1	0	0			0	0
2968	o-Dichlorobenzene	0.6	0	0			0	0
2969	para-Dichlorobenzene	0.075	0	0			0	0
2383	Total polychlorinated biphenyls	0.0005	0	0			0	0
2326	Pentachlorophenol	0.001	0	0			0	0

State:	KANSAS
Reporting Interval:	2001 Calendar Year

SDWIS Codes		MCL (mg/l) ¹	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
			Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
2987	Tetrachloroethylene	0.005	0	0			0	0
2984	Trichloroethylene	0.005	0	0			0	0
2996	Styrene	0.1	0	0			0	0
2991	Toluene	1	0	0			0	0
2979	trans-1,2-Dichloroethylene	0.1	0	0			0	0
2955	Xylenes (total)	10	0	0			0	0
2020	Toxaphene	0.003	0	0			0	0
2036	Oxamyl (Vydate)	0.2	0	0			0	0
2040	Picloram	0.5	0	0			0	0
2037	Simazine	0.004	0	0			0	0
2976	Vinyl chloride	0.002	0	0			0	0
2950	Total trihalomethanes	0.10	0	0			0	0

State:	KANSAS
Reporting Interval:	2001 Calendar Year

SDWIS Codes		MCL (mg/l) ¹	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
			Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
	Inorganic Contaminants (IOC)							
1074	Antimony	0.006	0	0			0	0
1005	Arsenic	0.05	0	0			0	0
1094	Asbestos	7 million fibers/l ≤ 10 µm long	0	0			0	0
1010	Barium	2	0	0			0	0
1075	Beryllium	0.004	0	0			0	0
1015	Cadmium	0.005	0	0			0	0
1020	Chromium	0.1	0	0			0	0
1024	Cyanide (as free cyanide)	0.2	0	0			0	0
1025	Fluoride	4.0	0	0			0	0
1035	Mercury	0.002	0	0			0	0
1040	Nitrate	10 (as Nitrogen)	64	28			1	1
1041	Nitrite	1 (as Nitrogen)	0	0			0	0

State:	KANSAS
Reporting Interval:	2001 Calendar Year

SDWIS Codes		MCL (mg/l) ¹	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
			Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
1045	Selenium	0.05	10	3			0	0
1085	Thallium	0.002	0	0			0	0
1038	Total nitrate and nitrite	10 (as Nitrogen)	0	0			0	0

State:	KANSAS
Reporting Interval:	2001 Calendar Year

SDWIS Codes		MCL (mg/l) ¹	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
			Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
	Radionuclide MCLs							
4000	Gross alpha	15 pCi/l	0	0			0	0
4010	Radium-226 and radium-228	5 pCi/l	3	3			0	0
4101	Gross beta	4 mrem/yr	0	0			0	0
	Subtotal Water Chemistry		77	34			1	1

State:	KANSAS
Reporting Interval:	2001 Calendar Year

SDWIS Codes		MCL (mg/l) ¹	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
			Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
	Total Coliform Rule							
21	Acute MCL violation	Presence	7	7				
22	Non-acute MCL violation	Presence	43	40				
23,25	Major routine and follow up monitoring						55	36
28	Sanitary survey						0	0
	Subtotal		50	47 ¹			55	36

¹Includes the 7 acute violations and violators. These 7 systems incurred an acute (fecal) coliform violation (Code 21), and also had a total coliform violation (Code 22) the same month. Hence, subtotal number of violations is higher than the number of PWSs due to the fact some PWSs incurred more than one violation.

State:	KANSAS
Reporting Interval:	2001 Calendar Year

SDWIS Codes		MCL (mg/l) ¹	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
			Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
	Surface Water Treatment Rule (SWTR)							
	Filtered systems							
36	Monitoring, routine/repeat						15	12
41	Treatment techniques				22	15		
	Unfiltered systems							
31	Monitoring, routine/repeat						0	0
42	Failure to filter				0	0		
	Subtotal				22	15	15	12

State:	KANSAS
Reporting Interval:	2001 Calendar Year

SDWIS Codes		MCL (mg/l) ¹	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
			Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations	Number of Violations	Number of Systems With Violations
	Lead and Copper Rule							
51	Initial lead and copper tap M/R						0	0
52	Follow-up or routine lead and copper tap M/R						11	11
58	Treatment Installation				2	2		
65	Public education				0	0		
	Subtotal				2	2	11	11

1. Values are in milligrams per liter (mg/l), unless otherwise specified.

SDWIS CODES	Consumer Confidence Rule	MCL Number of Violations	MCLs Number of Systems With Violations	Treatment Techniques Number of violations	Treatment Techniques Number of Systems With Violations	Significant Monitoring/Reporting Number of Violations	Significant Number of Systems W/Vio.
71		317	317			5	5
72		0	0			0	0

Definitions for the Violations Table above

The following definitions apply to the Summary of Violations table.

Filtered Systems: Water systems that have installed filtration treatment [40 CFR 141, Subpart H].

Inorganic Contaminants: Non-carbon-based compounds such as metals, nitrates, and asbestos. These contaminants are naturally-occurring in some water, but can get into water through farming, chemical manufacturing, and other human activities. Regulations have established MCLs for 15 inorganic contaminants [40 CFR 141.62].

Lead and Copper Rule: This rule established national limits on lead and copper in drinking water [40 CFR 141.80-91]. Lead and copper corrosion pose various health risks when ingested at any level, and can enter drinking water from household pipes and plumbing fixtures. States report violations of the Lead and Copper Rule in the following six categories:

Initial lead and copper tap M/R: A violation where a system did not meet initial lead and copper testing requirements, or failed to report the results of those tests to the State.

Follow-up or routine lead and copper tap M/R: A violation where a system did not meet follow-up or routine lead and copper tap testing requirements, or failed to report the results.

Treatment installation: Violations for a failure to install optimal corrosion control treatment system or source water treatment system which would reduce lead and copper levels in water at the tap. [One number is to be reported for the sum of violations in both categories].

Lead service line replacement: A violation for a system's failure to replace lead service lines on the schedule required by the regulation.

Public education: A violation where a system did not provide required public education about reducing or avoiding lead intake from water.

Maximum Contaminant Level (MCL): The highest amount of a contaminant that is allowed in drinking water. MCLs ensure that drinking water does not pose either a short or long-term health risk. MCLs are defined in milligrams per liter (parts per million) unless otherwise specified.

Monitoring: Regulations specify which water testing methods the water systems must use, and sets schedules for the frequency of testing. A water system that does not follow this schedule or methodology is in violation [40 CFR 141].

States must report monitoring violations that are significant as determined by the EPA Administrator and in consultation with the States. For purposes of this report, significant monitoring violations are major violations and they occur when no samples are taken or no results are reported during a compliance period. A major monitoring violation for the surface water treatment rule occurs when at least 90% of the required samples are not taken or results are not reported during the compliance period.

Organic Contaminants: Carbon-based compounds, such as industrial solvents and pesticides. These contaminants generally get into water through runoff from cropland or discharge from factories. Regulations set legal limits on 54 organic contaminants that are to be reported [40 CFR 141.61].

Radionuclides: Radioactive particles which can occur naturally in water or result from human activity. Regulations set legal limits on four types of radionuclides: radium-226, radium-228, gross alpha, and beta particle/photon radioactivity [40 CFR 141]. Violations for these contaminants are to be reported using the following three categories:

Gross alpha: A violation for alpha radiation above MCL of 15 picocuries/liter. Gross alpha includes radium-226 but excludes radon and uranium.

Combined radium-226 and radium-228: A violation for combined radiation from these two isotopes above MCL of 5 pCi/L.

Gross beta: A violation for beta particle and photon radioactivity from man-made radionuclides above 4 millirem/year.

SDWIS Code: Specific numeric codes from the Safe Drinking Water Information System (SDWIS) have been assigned to each violation type included in this report. The violations to be reported include exceeding contaminant MCLs, failure to comply with treatment requirements, and failure to meet monitoring and reporting requirements. Four-digit SDWIS Contaminant Codes have also been included in the chart for specific MCL contaminants.

Surface Water Treatment Rule (SWTR): The SWTR establishes criteria under which water systems supplied by surface water sources, or ground water sources under the direct influence of surface water, must filter and disinfect their water [40 CFR 141, Subpart H]. Violations of the “Surface Water Treatment Rule” are to be reported for the following four categories:

Monitoring, routine/repeat (for filtered systems): A violation for a system’s failure to carry out required tests, or to report the results of those tests.

Treatment techniques (for filtered systems): A violation for a system’s failure to properly treat its water.

Monitoring, routine/repeat (for unfiltered systems): A violation for a system’s failure to carry out required water tests, or to report the results of those tests.

Failure to filter (for unfiltered systems): A violation for a system’s failure to properly treat its water. Data for this violation code will be supplied to the States by EPA.

Total Coliform Rule (TCR): The Total Coliform Rule establishes regulations for microbiological contaminants in drinking water. These contaminants can cause short-term health problems. If no samples are collected during the one month compliance period, a significant monitoring violation occurs. States are to report four categories of violations:

Acute MCL violation: A violation where the system found fecal coliform or E. coli, potentially harmful bacteria, in its water, thereby violating the rule.

Non-acute MCL violation: A violation where the system found total coliform in samples of its water at a frequency or at a level that violates the rule. For systems collecting fewer than 40 samples per month, more than one positive sample for total coliform is a violation. For systems collecting 40 or more samples per month, more than 5% of the samples positive for total coliform is a violation.

Major routine and follow-up monitoring: A violation where a system did not perform any monitoring. [One number is to be reported for the sum of violations in these two

categories.]

Sanitary Survey: A major monitoring violation if a system fails to collect 5 routine monthly samples if sanitary survey is not performed.

Treatment Techniques: A water disinfection process that is required instead of an MCL for contaminants that laboratories cannot adequately measure. Failure to meet other operational and system requirements under the Surface Water Treatment and the Lead and Copper Rules have also been included in this category of violation for purposes of this report.

Unfiltered Systems: Systems that do not need to filter their water before disinfecting it because the source is very clean [40 CFR, Subpart H].

Violation: A failure to meet any state or federal drinking water regulation. Most violations require the water system to perform public notification to its consumers of said violation.

PWS SYSTEMS WITH NITRATE MCL VIOLATIONS:2001

	PWS NAME	EPA #	Pop.	LOCATION	ZIP	# of Vio.
1	ALMENA	2013701	469	ALMENA	67622	2
2	BELPRE	67519	104	BELPRE	67519	1
3	BURR OAK	2008906	265	BURR OAK	66936	2
4	CONTI BEEF	2006708	50	ULYSSES	67880	3
5	CONWAY SPRINGS	2019118	1322	CONWAY SPRINGS	67031	1
6	GAYLORD	2018301	145	GAYLORD	67638	2
7	GREEN	2002703	147	GREEN	67447	3
8	GREENLEAF	2020106	351	GREENLEAF	66943	3
9	HARPER CO RWD#3	2007704	29	HARPER	67058	2
10	HIAWATHA	2001305	3417	HIAWATHA	66434	2
11	JEFFERSON CO. RWD#15	2008721	228	GRANTVILLE	66429	4
12	JEWELL CO RWD#1	2008907	959	ESBON	66941	4
13	KIRWIN	2014702	229	KIRWIN	67644	2
14	LEWIS	2004702	486	LEWIS	67552	1
15	LOGAN	2014701	603	LOGAN	67646	4
16	LONG ISLAND	2014703	155	LONG ISLAND	67647	4
17	PHEASANT ACRES	2015515	70	HUTCHINSON	67501	1
18	PRATT AIRPORT	2115101	40	PRATT	67124	2
19	PRETTY PRAIRIE	2015501	615	PRETTY PRAIRIE	67570	2
20	ROBINSON	2001301	216	ROBINSON	66532	1
21	SAPPA VALLEY YOUTH RANCH	2103901	75	OBERLIN	67749	4
22	STERLING	2015902	2642	STERLING	67579	2
23	SUMNER CO RWD#5	2019101	585	CONWAY SPRINGS	67031	1
24	VIOLA	2017313	211	VIOLA	67149	1

TOTAL POPULATION AFFECTED: 13,413
TOTAL VIOLATIONS: 54
TOTAL PWS SYSTEMS: 24

PWS NONCOMMUNITY SYSTEMS WITH NITRATE UNDER 20 MG/L:2001

	PWS NAME	EPA #	Pop.	LOCATION	ZIP	# of Vio.
1	FAIRFIELD H.S. #310	2115514	148	LANGDON	67583	4
2	IBP, INC.	2105525	2900	HOLCOMB	67851	4
3	PARTRIDGE SCHOOL-#312	2115515	100	HAVEN	67543	1
4	SYL'S RESTAURANT	2117338	75	COLWICH	67030	1

TOTAL POPULATION AFFECTED: 3,223
TOTAL VIOLATIONS: 10
TOTAL PWS SYSTEMS: 4

PWS SYSTEMS WITH SELENIUM MCL VIOLATIONS: 2001

	PWS NAME	EPA #	Pop.	LOCATION	ZIP	# of Vio.
1	BURR OAK	2008906	265	BURR OAK	66936	3
2	GLADE	2014708	114	GLADE	67639	3
3	LOGAN	2014701	603	LOGAN	67646	4

TOTAL POPULATION AFFECTED: 982
 TOTAL VIOLATIONS: 10
 TOTAL PWS SYSTEMS: 3

PWS SYSTEMS WITH RADIONUCLIDE MCL VIOLATIONS: 2001

	PWS NAME	EPA #	POP	LOCATION	ZIP	#VIO
1	CLOUD CO RWD #1	2002901	450	AURORA	67417	1
2	COOLIDGE	2007501	86	COOLIDGE	67836	1
3	PAWNEE ROCK	2000916	356	PAWNEE RO	67567	1

TOTAL POPULATION AFFECTED: 892
 TOTAL VIOLATIONS: 3
 TOTAL PWS SYSTEMS: 3

**PWS SYSTEMS WITH TOTAL COLIFORM
ACUTE MCL VIOLATIONS: 2001**

	PWS NAME	EPA #	POP	LOCATION	ZIP	# VIO
1	ATCHISON CO RWD#6	2000510	549	ATCHISON	66002	1
2	BUTLER CO RWD#8	2001528	928	ROSE HILL	67133	1
3	FULTON	2001102	184	FULTON	66738	1
4	HAYS	2005111	20013	HAYS	67601	1
5	LAKESIDE UNITED METH.	2117106	0	SCOTT CITY	67871	1
6	MAIZE PIZZA HUT	2117332	25	WICHITA	67209	1
7	MOSCOW	2018902	247	MOSCOW	67952	1

TOTAL POPULATION AFFECTED: 21,946
 TOTAL VIOLATIONS: 7
 TOTAL PWS SYSTEMS: 7

**PWS SYSTEMS WITH TOTAL COLIFORM
MCL VIOLATIONS: 2001**

	PWS NAME	EPA #	POP.	LOCATION	ZIP	# VIO.
1	ALLEN CO RWD #2	2000108	36	IOLA	66749	1
2	ATCHISON CO. RWD #2	2000505	150	ATCHISON	66002	1
3	ATCHISON CO. RWD #6	2000510	549	ATCHISON	66002	1
4	BUNKER HILL	2016712	101	BUNKER HILL	67626	1
5	BUTLER CO. RWD#8	2001528	928	ROSE HILL	67133	1
6	CEDAR VALE	2001902	723	CEDAR VALE	67024	1
7	CHANUTE	2013307	9411	CHANUTE	66720	1
8	CHEROKEE CO. RWD#4	2002102	1100	SCAMMON	66773	1
9	COOLIDGE	2007501	86	COOLIDGE	67836	2
10	DEDEE'S I-70(MANHATTAN)	2116111	0	MANHATTAN	66502	1
11	ELLIS CO. RWD#2	2005115	45	HAYS	67601	1
12	FORD	2005709	314	FORD	67842	1
13	FRANKLIN CO. RWD#3	2005911	85	PRINCETON	66078	1
14	FULTON	2001102	184	FULTON	66738	1
15	GOESSEL	2011504	565	GOESSEL	67053	1
16	HAYS	2005111	20013	HAYS	67601	1
17	HILL CITY	2006503	1604	HILL CITY	67642	1
18	HORACE	2007101	143	HORACE	67879	1
19	IOLA	2000103	6324	IOLA	66749	1
20	JUNCTION CITY	2006108	18886	JUNCTION CITY	66441	1
21	LAKESIDE UNITED METHODIST	2117106	0	SCOTT CITY	67871	2
22	LEAVENWORTH CO. RWD#5	2010318	740	LEAVENWORTH	66048	1
23	LORRAINE	2005303	136	LORRAINE	67459	1
24	M & M MHP (CHAPMAN)	2004116	56	CHAPMAN	67431	1
25	MAHASKA	2020102	107	MAHASKA	66955	2
26	MAIZE PIZZA HUT	2117332	25	WICHITA	67209	1
27	MAPLE HILL	2019708	469	MAPLE HILL	66507	1
28	MIAMI CO. RWD#4	2012108	395	DREXEL	64742	1
29	MILLER MHP	2006110	113	MILFORD	66514	1
30	MOTGOMERY CO. RWD#4	2012501	600	SYCAMORE	67363	1
31	MOSCOW	2018902	247	MOSCOW	67363	1
32	PERU	2001906	183	PERU	67360	1
33	POWHATTAN	2001303	91	POWHATTAN	66527	1
34	PRESCOTT	2010705	325	PRESCOTT	66767	1
35	RUSSELL CO. RWD#1	2016707	64	RUSSELL	67665	1
36	RUSSELL CO. RWD#4	2016705	90	RUSSELL	67665	1
37	SATANTA	2008102	1239	SATANTA	67870	1
38	VULCAN MATERIALS	2117313	750	WICHITA	67277	1
39	WESTERN ACRES MHC	2015506	60	HUTCHINSON	67501	1
40	WILSON CO. RWD#4	2020504	293	NEODESHA	66757	1

TOTAL POPULATION AFFECTED:	67,230
TOTAL VIOLATIONS:	43
TOTAL PWS SYSTEMS:	40

**PWS SYSTEMS WITH TOTAL COLIFORM
MAJOR MONITORING VIOLATIONS: 2001**

	PWS NAME	EPA #	POP.	LOCATION	ZIP	# VIO.
1	ALL SEASONS CAMPGROUND	2117326	0	GODDARD	67052	2
2	ALLEN CO. RWD#15	2000121	135	IOLA	66749	1
3	ALLEN CO. RWD#16	2000122	62	MORAN	66755	1
4	BROOKVILLE	2016904	259	BROOKVILLE	67425	1
5	CASEY'S GENERAL STORE #1869	2117342	40	MAIZE	67101	1
6	COUNTRY VIEW MHP @ HAYS	2005121	75	HAYS	67601	1
7	COUNTRYSIDE ESTATES MHP	2005107	447	HAYS	67601	2
8	COWLEY CO. RWD#2	2003512	505	WINFIELD	67156	2
9	DEDEE'S I-70 (MANHATTAN)	2116111	0	MANHATTAN	66502	2
10	DENISON	2008505	231	DENISON	66419	1
11	DONIPHAN CO. RWD#1	2004305	75	LEONA	66532	1
12	EASTON	2010301	362	EASTON	66020	1
13	ELLIS CO. RWD#6	2005122	250	HAYS	67601	2
14	FT. RILEY	2006114	18000	FT. RILEY	66442	1
15	HEARTLAND COM. CHURCH	2110303	0	TONGANOXIE	66086	1
16	HOYT	2008501	571	HOYT	66440	1
17	LABETTE CO. RWD#1	2009907	140	OSWEGO	67356	1
18	LABETTE CO. RWD#4	2009909	120	OSWEGO	67356	1
19	LEAVENWORTH CO. RWD#10	2010315	499	LINWOOD	66052	1
20	MIAMI CO. RWD#4	2012108	395	DREXEL	64742	1
21	MOSCOW	2018902	247	MOSCOW	67952	1
22	NATIONWIDE VILLAGE MHP	2005101	155	HAYS	67601	2
23	OSAGE CO. RWD#7	2013906	1430	OSAGE CITY	66523	1
24	PHEASANT ACRES	2015515	70	HUTCHINSON	67501	6
25	READING	2011114	247	READING	66868	1
26	SPRING LAKE RESORT	2107902	150	HALSTEAD	67056	1
27	STAGG HILL GOLF CLUB	2116114	0	MANHATTAN	66502	1
28	STUCKEY'S DQ #192	2106303	0	GRINNELL	67738	1
29	TIMKEN	2016504	83	TIMKEN	67575	1
30	WALLACE CO. RWD#1	2019901	200	WESKAN	67762	5
31	WESTERN ACRES MHP	2015506	60	HUTCHINSON	67501	2
32	WHEATSTATE CAMP	2101504	0	AUGUSTA	67010	2
33	WILSEY ELEM. SCHOOL #417	2112706	90	WILSEY	66873	3
34	WILSON CO. RWD#7	2020516	390	FREDONIA	66736	1

TOTAL POPULATION AFFECTED:	25,288
TOTAL VIOLATIONS:	53
TOTAL PWS SYSTEMS:	34

**PWS SYSTEMS WITH TOTAL COLIFORM MINOR VIOLATIONS
MONITORING AND REPORTING VIOLATIONS: 2001**

	PWS NAME	EPA #	POP.	LOCATION	ZIP	# VIO.
1	ANDERSON CO. RWD#2	2000308	500	WESTPHALIA	66093	1
2	ARMA	2003713	1529	ARMA	66712	1
3	ATCHISON CO. RWD#2	2000505	150	ATCHISON	66002	3
4	BELLE PLAINE	2019115	1708	BELLE PLAINE	67013	1
5	BELPRE	2004701	104	BELPRE	67519	1
6	BLUE RAPIDS	2011710	1088	BLUE RAPIDS	66411	1
7	BP HUGOTON JAYHAWK PLT	2006705	27	SATANTA	67870	1
8	BUCKLIN	2005711	725	BUCKLIN	67834	1
9	BURNS	2011501	268	BURNS	66840	1
10	BURRTON	2007903	932	BURRTON	67020	1
11	CAMP HAWK	2107908	25	NEWTON	67114	1
12	CASEY'S GEN. STORE #1869	2117342	40	MAIZE	67101	1
13	CEDAR POINT	2001706	53	CEDAR POINT	66843	1
14	CEDAR VALE	2001902	723	CEDAR VALE	67024	2
15	CHAPMAN	2004108	1241	CHAPMAN	67431	1
16	CLAY CO. RWD#2	2002710	950	CLAY CENTER	67432	1
17	COAL HOLLOW WATER CO.	2013302	57	THAYER	66776	1
18	COLDWATER	2003304	792	COLDWATER	67029	1
19	COLORADO INTERSTATE GAS	2112902	132	RICHFIELD	67953	2
20	COLUMBUS	2002110	2396	COLUMBUS	66725	1
21	CONCORDIA TEXACO TRAVEL	2102904	25	CONCORDIA	66901	1
22	COUNTRY STORE @ MAIZE	2005121	0	MAIZE	67101	5
23	COUNTRY VIEW MHP-HAYS	2005121	75	HAYS	67601	2
24	COUNTRYSIDE ESTATES-HAYS	2005107	447	HAYS	67601	1
25	COWLEY CO. RWD#2	2003512	505	WINFIELD	67156	1
26	COWLEY CO. RWD#5	2003508	1356	BURDEN	67019	1
27	DAMAR	2016305	155	DAMAR	67632	1
28	DEDEE'S I-70 (MANHATTAN)	2116111	0	MANHATTAN	66502	2
29	DICKINSON CO. RWD #3	2004115	39	CHAPMAN	67431	1
30	DONIPHAN CO. RWD#1	2004305	75	LEONA	66532	2
31	DONIPHAN CO. RWD#2	2004303	167	BENDENA	66008	1
32	DUTCH KITCHEN	2115505	0	HUTCHINSON	67501	1
33	EASTON	2010301	362	EASTON	66020	2
34	EASTSIDE MHP	2005537	50	GARDEN CITY	67846	1
35	ELBING	2001512	218	ELBING	67041	1
36	ELGIN	2001901	82	ELGIN	67361	1
37	ELK CITY	2012520	305	ELK CITY	67344	1
38	ELLIS	2005114	1873	ELLIS	67637	1
39	ENSIGN	2006905	203	ENSIGN	67841	1
40	ENT. INC. DBA DEDEE #5	2104109	50	ENTEPRISE	67401	3
41	FARMLAND INDUS.@DODGE CITY	2005706	55	DODGE CITY	67801	1
42	FLORENCE	2011503	671	FLORENCE	66851	1
43	FRONTENAC	2003720	2996	FRONTENAC	66763	1
44	GREENLEAF	2020106	351	GREENLEAF	66943	1
45	HAMILTON	2007303	334	HAMILTON	66853	3
46	HARTFORD	2011111	500	HARTFORD	66854	1
47	HAYS SUB. ESTATES	2005116	45	HAYS	67601	1
48	HEARTLAND COMM. CHURCH	2110303	0	TONGANOXIE	66086	2

49	HOWARD	2004901	808	HOWARD	67349	1
50	HOYT	2008501	571	HOYT	66440	2
51	JOHNSTON TRAILER CT.	2006116	25	JUNCTION CITY	66441	2
52	LA HARPE	2000105	706	LAHARPE	66751	2
53	LAKESIDE UNITED METHODIST CH.	2117106	0	SCOTT CITY	67871	2
54	LEAVENWORTH CO. RWD#1	2010316	90	LEAVENWORTH	66048	1
55	LEAVENWORTH CO. RWD#10	2010315	499	LEAVENWORTH	66048	2
56	LONGHORN STEAKHOUSE & SALOON	2117346	65	WICHITA	67215	3
57	MANCHESTER	2004103	102	ABILENE	67410	2
58	MEDICINE LODGE	2000702	2193	MEDICINE LODGE	67104	1
59	MIAMI CO. RWD#4	2012108	395	DREXEL	64742	1
60	MIDWAY USA TRUCKSTOP/WESKAN	2117507	100	LIBERAL	67901	4
61	MILFORD FISH HATCHERY	2106129	21	JUNCTION CITY	66441	1
62	MILTONVALE	2002903	523	MILTONVALE	67466	1
63	MONTEZUMA MENNONITE SCHOOL	2106902	70	MONTEZUMA	67867	2
64	MORNING STAR RANCH	2111513	35	FLORENCE	66851	1
65	MOSCOW	2018902	247	MOSCOW	67952	1
66	NICODEMUS TWP VILLA HOUSING	2006505	32	BOGUE	67625	1
67	NORWICH	2009505	551	NORWICH	67118	2
68	OAKLEY	2010901	2173	OAKLEY	67748	1
69	OKETO	2011704	87	OKETO	66518	1
70	OSAGE CO. RWD#4	2013917	486	WAVERLY	66871	1
71	OSAGE CO. RWD#6	2013902	370	LYNDON	66451	1
72	PARKER	2010706	281	PARKER	66072	1
73	PEABODY	2011509	1384	PEABODY	66866	1
74	PHEASANT ACRES	2015515	70	HUTCHINSON	67501	1
75	PRATT LIVESTOCK	2115107	15	PRATT	67124	1
76	PRAY-WOODMAN,VERMIL,MAIZE H.S.	2117341	3553	MAIZE	67101	1
77	PRESTO OIL #15	2105533	0	GARDEN CITY	67846	3
78	RANTOUL	2005902	241	RANTOUL	66079	1
79	RIVERTON USD #404	2102102	820	RIVERTON	66770	1
80	ROBINSON OIL CITGO #15	2105531	40	GARDEN CITY	67846	1
81	ROLLING HILLS LANDOWNERS ASSOC.	2017505	62	LIBERAL	67901	1
82	RUSSELL CO. RWD#1	2016707	64	RUSSELL	67665	1
83	RUSSELL CO. RWD#4	2016705	90	RUSSELL	67665	1
84	SCRANTON	2013911	724	SCRANTON	66537	1
85	SEVERY	2007308	359	SEVERY	67137	1
86	SHALLOW WATER SCHOOL	2117103	165	SCOTT CITY	67871	1
87	SIMPSON	2012307	114	SIMPSON	67478	1
88	STAGG HILL GOLF CLUB	2116114	0	MANHATTAN	66502	2
89	STERLING	2015902	2642	STERLING	67579	1
90	STUCKEY'S DQ #192	2106303	0	GRINNELL	67738	3
91	STUCKEY'S PECAN SHOPPE	2119301	0	BREWSTER	67732	1
92	SUBLETTE	2008103	1592	SUBLETTE	67877	1
93	SUPPESVILLE COASTAL	2119102	30	MILTON	67106	1
94	THUNDERBIRD MARNIA	2106113	25	JUNCTION CITY	66441	1
95	TIMKEN	2016504	83	TIMKEN	67575	2
96	UNIVERSITY PARK	2016103	109	MANHATTAN	66502	1
97	WALTON	2007908	284	WALTON	67151	1
98	WAVERLY	2003108	589	WAVERLY	66871	1
99	WEST HILLS SUBDIVISION	2015519	50	NICKERSON	67561	1
100	WEST MINERAL	2002115	243	WEST MINERAL	66782	1

101	WESTERN ACRES MHC	2015506	60	HUTCHINSON	67501	3
102	WESTSIDE MHP	2005537	50	GARDEN CITY	67846	1
103	WILSEY ELEM SCHOOL USD#417	2112706	90	WILSEY	66873	1
104	WILSON CO. RWD#1	2020515	323	FREDONIA	66736	2
105	WINDSONG PLACE	2005539	53	HOLCOMB	67851	1

TOTAL POPULATION AFFECTED:	48,733
TOTAL VIOLATIONS:	144
TOTAL PWS SYSTEMS:	105

**PWS SYSTEMS WITH SURFACE WATER TREATMENT
TREATMENT TECHNIQUE VIOLATIONS: 2001**

	PWS NAME	EPA #	POP.	LOCATION	ZIP	#VIO.
1	ATCHISON	2000506	1032	ATCHISON	66002	1
2	AUGUSTA	2001503	8839	AUGUSTA	67010	3
3	CEDAR VALE	2001902	723	CEDAR VALE	67024	2
4	ESKRIDGE	2019703	589	ESKRIDGE	66423	3
5	GRENOLA	2004904	231	GRENOLA	67346	1
6	HARVEYVILLE	2019704	267	HARVEYVILLE	66431	1
7	KCP&L LACYGNE	2110701	335	LACYGNE	66040	1
8	MARION	2011507	2110	MARION	66861	1
9	OLATHE	2009115	92962	OLATHE	66051	1
10	PARKER	2010706	281	PARKER	66072	1
11	PARSONS	2009914	11514	PARSONS	67357	3
12	SEDAN	2001903	1342	SEDAN	67361	1
13	SEVERY	2007308	359	SEVERY	67137	1
14	SPRING HILL	2009120	2727	SPRING HILL	66083	1
15	VALLEY FALLS	2008710	1254	VALLEY FALLS	66088	1

TOTAL POPULATION AFFECTED: 124,565
TOTAL VIOLATIONS: 22
TOTAL PWS SYSTEMS: 15

**PWS SYSTEMS WITH SURFACE WATER TREATMENT
MONITORING, ROUTINE/REPEAT VIOLATIONS: 2001**

	PWS NAME	EPA #	POP.	LOCATION	ZIP	# VIO.
1	ANDERSON CO. RWD#2	2000308	500	WESTPHALIA	66093	3
2	BLUE MOUND	2010701	277	BLUE MOUND	66010	1
3	ELK CITY	2012520	305	ELK CITY	67344	1
4	HERINGTON	2004102	2563	HERINGTON	67449	1
5	HORTON	2001306	1967	HORTON	66439	1
6	KPL-JEFFREY ENERGY	2114901	302	ST. MARYS	66536	1
7	KS AAP - PARSONS	2009911	354	PARSONS	67357	1
8	LOUISBURG	2012106	2576	LOUISBURG	66053	1
9	MADISON	2007301	857	MADISON	66860	1
10	PARKER	2010706	281	PARKER	66072	2
11	TORONTO	2020701	312	TORONTO	66777	1
12	CLINTON RES COE	2104504	25	LAWRENCE	66049	1

TOTAL POPULATION AFFECTED: 10,319
TOTAL VIOLATIONS: 15
TOTAL PWS SYSTEMS: 12

PWS SYSTEMS WITH MAJOR CONSUMER CONFIDENCE REPORT VIOLATIONS: 2001

	PWS NAME	EPA #	POP.	LOCATION	ZIP	# VIO.
1	RUSH CO. RWD#1	2016509	150	MCCRACKEN	67556	1
2	RUSSELL CO. RWD #1	2016707	64	RUSSELL	67665	1
3	PHEASANT ACRES (SILVER OAK)	2015515	70	HUTCHINSON	67501	1
4	WILSON CO. RWD#7	2020516	390	FREDONIA	66736	1

TOTAL POPULATION AFFECTED: 647
 TOTAL VIOLATIONS: 4
 TOTAL PWS SYSTEMS: 4

PWS SYSTEMS WITH LEAD & COPPER VIOLATIONS: 2001
FOLLOW-UP OR ROUTINE LEAD/COPPER TAP MONITORING

	PWS NAME	EPA #	POP.	LOCATION	ZIP	# VIO.
1	CHEROKEE CO RWD#1	2002111	575	CRESTLINE	66728	1
2	COUNTRY VIEW MHP	2005121	75	HAYS	67601	1
3	D&W WATER COMPANY	2016101	81	MANHATTAN	66502	1
4	EASTON	2010301	362	EASTON	66020	1
5	RUSH CO RWD#1	2016509	150	MCCRACKEN	67556	1
6	ST. PAUL'S LUTHERAN SCHOOL	2115519	50	HAVEN	67543	1
7	NICODEMUS TWP	2006505	32	BOGUE	67625	1
8	RUSSELL CO RWD#1	2016707	64	RUSSELL	67665	1
9	ELLIS CO RWD#6	2005122	250	HAYS	67601	1
10	HADDAM	2020109	169	HADDAM	66944	1
11	EAST GARDEN VILLAGE MHP	2005543	2800	GARDEN CITY	67846	1

TOTAL POPULATION AFFECTED: 4608
 TOTAL VIOLATIONS: 11
 TOTAL PWS SYSTEMS: 11

PWS SYSTEMS WITH TREATMENT INSTALLATION VIOLATIONS: 2001

	PWS NAME	EPA#	POP.	LOCATION	ZIP	# VIO.
1	BELLE PLAINE	2019115	1708	BELLE PLAINE	67013	1
2	CONWAY SPRINGS	2019118	1322	CONWAY SPRINGS	67031	1

TOTAL POPULATION AFFECTED: 3030
TOTAL VIOLATIONS: 2
TOTAL PWS SYSTEMS: 2

PWS SYSTEMS WITH TREATMENT RECOMMENDATION VIOLATIONS: 2001

	PWS NAME	EPA#	POP.	LOCATION	ZIP	# VIO.
1	SHEPERD'S GATE BOYS HOME	2116907	50	ASSARIA	67416	1

TOTAL POPULATION AFFECTED: 50
TOTAL VIOLATIONS: 1
TOTAL PWS SYSTEMS: 1

APPENDIX C

**LIST OF KDHE CONTACTS
FOR ADDITIONAL INFORMATION**

For additional copies of this report or questions regarding drinking water, please contact KDHE's Bureau of Water or any of the following:

KDHE - BUREAU OF WATER
PUBLIC WATER SUPPLY www.kdhe.state.ks.us
1000 SW JACKSON - SUITE 420
TOPEKA, KANSAS 66612-1367

Director, Bureau of Water
KARL MUELDENER.....(785) 296-5500

Public Water Supply Section Chief
DAVE WALDO.....(785) 296-5514

Capacity Development
CATHY TUCKER-VOGEL.....(785) 368-7130

Engineering and Permits
DAN CLAIR.....(785) 296-5516

Compliance and Data Management Unit Chief
DARREL PLUMMER.....(785) 296-5523

Program Development/Enforcement
KELLY KELSEY.....(785)296-6297

Inorganics, Organic Compounds, Nitrate, Consumer Confidence Report
PATTI CROY.....(785) 296-3016

Bacteriological, Surface Water Treatment, Radionuclides
JEAN HERROLD.....(785) 296-5518

Lead and Copper, Trihalomethanes,
RON CRAMER.....(785) 296-5946

Data Management
ELLAN SPIVEY.....(785) 296-6434

Data Entry
Kathy Fritts.....(785) 296-7111

Operator Certification

VICKIE JO WESSEL.....(785)296-2976

Source Water Assessment

ROB BEILFUSS.....(785)296-5535

Kansas PWS Loan Fund

WILLIAM CARR.....(785)296-0735